

# MATERIAL SAFETY DATA SHEET

## Brass Alloys

### I. MATERIAL IDENTIFICATION

Manufacturer's Name: Oregon Brass Works  
Address: 1127 SE 10th Avenue  
Material Name: Brass Portland, Oregon 97214

Telephone Number: 503/232-7121

POR SF  
11.3.125.1v1  
09/01/85

### II. HAZARDOUS INGREDIENTS

	CAS Number	%		OSHA 8-hr TWA	ACGIH 8-hr TWA (1984-85)	ACGIH STEL (1984-85)
Copper	(7440-50-8)	≥ 49	(Dust) (Fume)	1 mg/m <sup>3</sup> 0.1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup> 0.2 mg/m <sup>3</sup>	2 mg/m <sup>3</sup> --
Zinc	(1314-13-2)	< 51	(Dust) (Fume)	-- 5 mg/m <sup>3</sup>	(2) 5 mg/m <sup>3</sup> (as zinc oxide)	-- 10 mg/m <sup>3</sup>
Manganese	(7439-96-5)	< 13	(Dust) (Fume)	5 mg/m <sup>3</sup> * --	5 mg/m <sup>3</sup> * 1 mg/m <sup>3</sup>	-- 3 mg/m <sup>3</sup>
Lead	(7439-92-1)	≤ 8		0.05 mg/m <sup>3</sup>	0.15 mg/m <sup>3</sup>	0.45 mg/m <sup>3</sup>
Aluminum	(7429-90-5)	< 8	(Dust) (Fume)	-- --	10 mg/m <sup>3</sup> 5 mg/m <sup>3</sup>	20 mg/m <sup>3</sup> --
Tin	(7440-31-3)	< 7		2 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>	4 mg/m <sup>3</sup>
Silicon	(7440-21-3)	< 6		(1)	(2)	20 mg/m <sup>3</sup>
Iron	(1309-37-1)	≤ 4		10 mg/m <sup>3</sup>	5 mg/m <sup>3</sup> (as iron oxide fume)	10 mg/m <sup>3</sup>
Nickel	(7440-02-0)	≤ 4		1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	--
Antimony	(7440-36-0)	< 1		0.5 mg/m <sup>3</sup>	0.5 mg/m <sup>3</sup>	--
Arsenic	(7440-38-2)	< 1		0.01 mg/m <sup>3</sup>	0.2 mg/m <sup>3</sup>	--
Silver	(7440-22-4)	< 1		0.01 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>	--

#### \* Ceiling Limit

- (1) < 1% quartz, 15 mg/m<sup>3</sup> of total dust or 5 mg/m<sup>3</sup> respirable dust.
- (2) < 1% quartz, 10 mg/m<sup>3</sup> of total dust or 5 mg/m<sup>3</sup> respirable dust.

Note: antimony trioxide, arsenic, and nickel have been identified as potential human carcinogens. See Section VI, Health Hazard Data.

### III. PHYSICAL DATA

Melting Point: 888 - 1066° C  
Specific Gravity: 7.70 - 8.86  
Boiling Point (of copper): 2324° C

Vapor Pressure: 1 mm Hg @ 1628° C  
(of copper)  
Solubility in water: Insoluble

Appearance: dependent on composition of scrap metal, processing method used, and existing protective coatings.



#### IV. FIRE AND EXPLOSION DATA

Flash Point: information not available

Flammable Limits: information not available

Autoignition Temperature: information not available

Brass scrap itself presents a negligible fire and explosion hazard. A moderate fire and explosion hazard may exist due to contamination, or when the material is finely divided and exposed to heat or flames.

Fire Extinguishing Methods: Use dry chemical or sand. Fire fighters should wear self-contained breathing apparatus and full protective clothing.

#### V. REACTIVITY DATA

Copper reacts violently with acetylene. Material may also be incompatible with acids, bases, and oxidizers. Dust presents moderate fire and explosion hazards. Molten scrap metal may react violently with water. For additional information, users should consult data sheets on individual component elements.

#### VI. HEALTH HAZARD DATA

TLV: see Section II.

Primary Routes of Entry: inhalation of dust or fume.

Under normal handling and use, exposure to the massive form of brass scrap presents few health hazards. Thermal cutting and melting of scrap may produce fumes containing the component elements, and breathing these fumes may present potentially significant health hazards. The exposure levels in Section II are relevant to fumes and dusts. Special precautions should be taken if scrap is contaminated; see Section IX.

Fumes of copper, manganese, and zinc oxide may cause metal fume fever with flu-like symptoms. Copper may cause skin and hair discoloration; silver may cause a greyish pigmentation of the skin, and can cause irritation of the skin and mucous membranes. Overexposure to dusts and especially fumes containing component elements may cause skin, nose, mouth, and eye irritation and lung changes in workers, potentially leading to pulmonary diseases.

Nickel compounds have been associated with allergic reactions and rashes, and lung changes. Nickel is a respiratory irritant and can cause pneumonitis. Inhalation of finely divided aluminum powder may cause pulmonary fibrosis.

Overexposure to manganese fumes can cause chronic manganese poisoning. Early symptoms include headaches, apathy, sleepiness, and weakness or cramps in the legs. Chronic overexposure can affect the central nervous system, ultimately leading to emotional disturbances, gait and balance difficulties, and paralysis.

Overexposure to antimony may cause gastrointestinal upset and various nervous complaints, such as sleeplessness, irritability, and muscular pains. Inhalation of lead fumes or dusts, or ingestion of lead compounds, can cause lead poisoning, characterized by abdominal pains, joint and muscle pains, or weakness. Prolonged overexposure can cause central nervous system disorders.

Overexposure to arsenic fumes or dusts can lead to arsenic poisoning, characterized by nausea, vomiting, and diarrhea. Prolonged overexposure can lead to liver and kidney damage, central nervous system disorders, and ultimately death. Arsenic can cause skin irritation and allergic reactions.

Antimony trioxide, arsenic, and nickel have been identified as potential cancer-causing agents.

#### FIRST AID:

Eye Contact:	Flush well with running water to remove particulate. Get medical attention.
Skin Contact:	Brush off excess dust. Wash area well with soap and water.
Inhalation:	Remove to fresh air. Get medical attention.
Ingestion:	Seek medical help if large quantities of material have been ingested. (Ingestion of significant amounts of scrap metal is unlikely.)

## VII. SPILL PROCEDURES

No special precautions are necessary for spills of bulk material. If large quantities of dust are spilled, remove by vacuuming or wet sweeping to prevent heavy concentrations of airborne dust. Clean-up personnel should wear respirators and protective clothing.

Scrap metal can be reclaimed for reuse. Follow Federal, State, and Local regulations regarding disposal.

## VIII. SPECIAL PROTECTION INFORMATION

Use general and local exhaust ventilation to keep airborne concentrations of dust or fumes below the TLV. Employees should wear MSHA or NIOSH approved respirators for protection against airborne dust or fumes. Full protective clothing should be worn by workers exposed to heavy concentrations of dust, and showering should be required before changing into street clothes. Gloves and barrier creams may be necessary to prevent skin sensitization and dermatitis.

Approved safety glasses or goggles should be worn when working with dusty material. Safety eyewash stations should be provided in close proximity to work areas.

Pre-employment and periodic medical evaluations should be provided. Attention should be directed toward skin, eyes, respiratory tract, blood, kidneys, pulmonary function, and neurologic health. Chest X-rays should be included if symptoms are present.

Food should not be consumed in the work area.

Special attention is drawn to the requirements of the Occupational Safety and Health Administration standards for lead (29 CFR 1910.1025) and arsenic (29 CFR 1910.1018). State OSHA programs will also have similar requirements.

Special precautions should be taken if scrap is contaminated; see Section IX.

## IX. SPECIAL PRECAUTIONS

Use good housekeeping practices to prevent accumulations of dust and to keep airborne dust concentrations at a minimum. Avoid breathing dust or fumes.

Store material away from incompatible materials, and keep dust away from sources of ignition.

This material is potentially contaminated with coatings, paints, preservatives, cutting oils, and other contaminants. If the material is contaminated, special precautions (such as process control and personal protective equipment, appropriate to the nature of the suspected contaminants) should be taken to avoid resulting exposures when handling, cutting (mechanical or thermal), and/or melting.

Prepared by: Institute of Scrap Iron and Steel (ISIS)  
in consultation with JRB Associates

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